What is claimed is:

1. An optical recording medium that can record information by irradiating laser beam to form recording marks on a recording layer and read the recorded information by irradiating a reading laser beam onto the recording mark; wherein said optical recording medium has virtual recording cells on said recording layer specified in an arbitrary unit length in a direction of relative movement between the laser beam and the recording layer and in a unit width in a direction that intersects the above-mentioned direction at a right angle and is continuously set in said direction of movement; said recording layer on said virtual recording cells can form the recording marks with different sizes for each of said virtual recording cell in correspondence to the modulation of the irradiation time of the laser beam in five levels or more to perform multilevel recording of five levels or more of information by means of modulating the reflectance based on at least the area ratio out of the area ratio of the recording mark to the virtual recording cell and transmittance.

2. The optical recording medium according to claim 1, wherein the unit length of said virtual recording cell is set almost equal to the length of the recording mark formed by laser beam irradiation for the maximum amount of time.

3. The optical recording medium according to claim 1, wherein: grooves for guiding laser beam are provided along said

recording layer, said virtual recording cells are set inside said grooves and said unit width matches a width of said groove.

4. The optical recording medium according to claim 1, wherein said unit length in said virtual recording cells are equal to or less than the diameter of beam waist of said reading laser beam.

5. The optical recording medium according to claim 1, wherein information is recorded in multiple levels in advance on one part of said recording layer.

6. The optical recording medium according to claim 1, wherein specific information which represents a multilevel recording medium is recorded on at least one of said virtual recording cells and a multilevel recorded part.

7. The optical recording medium according to claim 1, wherein grooves for guiding laser beam are provided along said recording layer and are cut in the middle.

8. The optical recording medium according to claim 1, wherein said recording layer is made of an organic dye.

9. The optical recording medium according to claim 1, wherein

when a reflectance fluctuation width stipulated from an initial reflectance X% of said virtual recording cells before irradiation of said laser beam and from the minimum limit reflectance Y% after irradiation of said laser beam is X/100 - Y/100, said virtual recording cells are set to have a

characteristic of:

$1.8 < (B - A) / A < 11$

where A is the irradiation time necessary to reduce the initial reflectance X% by 20%, assuming this entire fluctuation width to be 100%, through the use of said laser beam irradiation at a fixed power and B is the irradiation time necessary to reduce the initial reflectance X% by 80% of said reflectance fluctuation width X/100 - Y/100, through the use of said laser beam irradiation, such that said optical recording medium can perform multilevel recording on said virtual recording cells by switching the irradiation time of said laser beam at a fixed power in five levels or more.

10. The optical recording medium according to claim 9, wherein the recording marks with a plurality of sizes, formed by switching the irradiation time of said laser beam in five levels or more and recording at multiple levels include a recording mark with a length equal to or less than the diameter of converging beam waist of the reading laser beam as a part.

11. The optical recording medium according to claim 9, wherein said recording layer of said optical recording medium includes an organic dye component.

12. The optical recording medium according to any one of claims 9-11, wherein said initial reflectance X of said virtual recording cells before recording is 40% or more and said minimum limit reflectance Y after recording is (X-10)% or less.

13. The optical recording medium according to claim 12, wherein said minimum limit reflectance Y after recording is 30% or less.

14. The optical recording medium according to claim 1, wherein the recording medium is composed such that said laser beam irradiates to form a plurality of recording marks with different sizes in a state in which a ratio between a longest irradiation time TL and a shortest irradiation time TS during the irradiation of said recording layer at said irradiation time of five levels or more satisfies the relationship of $0.05 < TS/TL < 0.5$.

15. The optical recording medium according to claim 14, wherein said recording layer includes an organic dye.

16. The optical recording medium according to claim 14, wherein said longest irradiation time TL of said laser beam is set to $2 \times 10^{-8} < TL < 1 \times 10^{-6}$ (sec).

17. The optical recording medium according to claim 16, wherein said recording layer includes an organic dye.

18. An optical recording method comprising the step of irradiating a laser beam onto a recording layer while moving either the recording layer or laser beam in a constant direction to form recording marks onto the recording layer, thereby recording information; said optical recording method further comprising the steps of:

assuming virtual recording cells continuously in said

movement direction on said recording layer;

modulating an irradiation time of the laser beam in five levels of more for each of said virtual recording cell; and

forming the recording marks with different sizes in said virtual recording cells to perform multilevel recording of five levels or more of information by means of modulating the reflectance of the entire virtual recording cells based on at least the area ratio out of the area ratio of the recording mark to the virtual recording cell and transmittance.

19. The optical recording method according to claim 18, wherein said recording layer comprises a material that modulates at least the size out of the size and transmittance of the recording mark, only in response to the irradiation time when the beam diameter of the laser beam is fixed, and the laser beam irradiates with a fixed beam diameter.

20. The optical recording method according to claim 18, wherein said laser beam irradiates to form a plurality of the recording marks with different sizes in a state in which a ratio between a longest irradiation time TL and a shortest irradiation time TS during said irradiation time of five levels or more satisfies the relationship of $0.05 < TS/TL < 0.5$.

21. The optical recording method according to claim 20, wherein the recording marks with different sizes formed by irradiation of said laser beam include a recording mark with a length equal to or less than the diameter of the converging

beam of the reading laser as a part.

22. The optical recording method according to claim 20, wherein said longest irradiation time TL of said laser beam is set to $2 \times 10^{-8} < TL < 1 \times 10^{-6}$ (sec).

23. The optical recording medium according to claim 18, wherein

when a reflectance fluctuation width stipulated from an initial reflectance X% of said virtual recording cell before irradiation of said laser beam and from the minimum limit reflectance Y% after irradiation of said laser beam is X/100 - Y/100, said virtual recording cells are set to have a characteristic of:

$1.8 < (B - A) / A < 11$

where A is the irradiation time necessary to reduce the initial reflectance X% by 20%, assuming this entire fluctuation width to be 100%, through the use of said laser beam irradiation at a fixed power and B is the irradiation time necessary to reduce the initial reflectance X% by 80% of said reflectance fluctuation width X/100 - Y/100, through the use of said laser beam irradiation,

and multilevel recording is performed on said virtual recording cell by switching the irradiation time of said laser beam at a fixed power in five levels or more.

24. The optical recording medium according to claim 23, wherein multilevel recording is performed by switching the

irradiation time of said laser beam in five levels or more so as that the recording marks with a plurality of sizes formed by a laser beam irradiation include a recording mark with a length equal to or less than the diameter of converging beam waist of the reading laser beam as a part.

25. The optical recording medium according to claim 23, wherein said recording layer includes an organic dye component so that the recording layer has the characteristics mentioned above.

26. The optical recording medium according to claim 23, wherein the characteristics of said recording layer are set in order that said initial reflectance X of said virtual recording cell before recording is 40% or more and said minimum limit reflectance Y after recording is (X-10)% or less.

27. The optical recording medium according to claim 26, wherein the characteristics of said recording layer are set in order that said minimum limit reflectance Y after recording is 30% or less.